

Introduction to Mobile Robot Control (Elsevier Insights)

By Spyros G Tzafestas



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Introduction to Mobile Robot Control provides a complete and concise study of modeling, control, and navigation methods for wheeled non-holonomic and omnidirectional mobile robots and manipulators. The book begins with a study of mobile robot drives and corresponding kinematic and dynamic models, and discusses the sensors used in mobile robotics. It then examines a variety of model-based, model-free, and vision-based controllers with unified proof of their stabilization and tracking performance, also addressing the problems of path, motion, and task planning, along with localization and mapping topics. The book provides a host of experimental results, a conceptual overview of systemic and software mobile robot control architectures, and a tour of the use of wheeled mobile robots and manipulators in industry and society.

Introduction to Mobile Robot Control is an essential reference, and is also a textbook suitable as a supplement for many university robotics courses. It is accessible to all and can be used as a reference for professionals and researchers in the mobile robotics field.

- Clearly and authoritatively presents mobile robot concepts
- Richly illustrated throughout with figures and examples
- Key concepts demonstrated with a host of experimental and simulation examples
- No prior knowledge of the subject is required; each chapter commences with an introduction and background





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